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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PATEL, SHAMBHAVI K	
ART UNIT	PAPER NUMBER
2128	

NOTIFICATION DATE	DELIVERY MODE
09/19/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/743,086	YOSHIDA ET AL.	
	Examiner	Art Unit	
	Shambhavi Patel	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7 and 8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,7 and 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **08 August 2007** has been entered.

2. Claims 1, 3-5 and 7-8 have been presented for examination. Claims 2, 6 and 9-20 have been cancelled.

Response to Arguments

3. In view of Applicant's arguments and figure 1 (and its description in the specification), the 35 U.S.C. 101 rejection is withdrawn.

4. Applicant's arguments with respect to the 35 U.S.C. 102 rejections of claims 1, 3-5 and 7-8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1, 3-5 and 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite** for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 5:

i. the terms "description" and "description data" are indefinite

ii. the limitation "switching of the continuous system equations upon state transitions" is indefinite. What does "switching" entail? How are the state transitions detected?

iii. the limitation "description of an additional process other than any process relating to the continuous system equations" is indefinite.

iv. the limitations "generating a first program on the basis of the extracted description of the continuous system equations," "generating a second program on the bases of the extracted description of the switching," and "generating a third program on the basis of the extracted description of the additional process" are indefinite. The term "basis of" is broad, and it is unclear what the three programs should be comprised of.

v. the limitation "starting a simulation of the mechanism" is indefinite. Which model/program is being simulated? Is it the entire hybrid model? It is the internal data expressions?

vi. the limitation "in response to a first event that is detected by the second program" is indefinite. In accordance with an earlier limitation, the second program is created on the basis of "switching." It is unclear how this incorporates the detection of events.

vii. the limitation "executing the simulation to output data that expresses the behavior of the mechanism" is indefinite. Which model/program is being simulated? Is it the entire hybrid model? It is the internal data expressions? A previous limitation already recites "starting a simulation..." How is this different from "executing" the simulation? It is unclear what defines the data that expresses the behavior of the mechanism.

viii. the limitation "according to the converted data structure" is indefinite because it is unclear what is meant by "according to" with regards to the rest of the limitations.

ix. the limitation "wherein the data is supplied to the mechanism control software as a response to a control signal provided from the mechanism control software" is indefinite. When is the "control signal" received? Is the simulation done in response to this "control signal"? How is the occurrence of the "control signal" detected?

x. the limitation "executing the third program to execute the additional process in response to occurrence of a second event that is detected by the second program" is indefinite. In accordance with an earlier limitation, the second program is created on the basis of "switching." It is unclear how this incorporates the detection of events. The previous limitation recites "executing the simulation to output data..." This implies that the end result of the simulation has been calculated. Does the execution of the third program not effect the simulation?

xi. The claimed limitations do not necessitate simulation incorporate the execution of the program. The claim recites "starting a simulation of the mechanism..." and executing the simulation to output data..." but these specific steps do not explicitly state that the programs are included within the simulation.

Regarding claims 3 and 7:

xii. According to claim 1, the third program is created on the bases of the additional process. **Pages 22-23** state that examples of additional processes include "displaying the progress of simulation processes on a screen, a process for outputting data associated with the simulation to a file, and the like..." It is unclear how the simulation results are related to control signals and the mechanism control software.

All other claims are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claim 1, 3-5 and 7-8 are rejected under 35 U.S.C. 102(b)** as being clearly anticipated by **Liu ("A Hierarchical Hybrid System Model and Its Simulation"**, 1999).

Regarding claims 1 and 5:

Liu discloses a simulation method of simulating a behavior of a mechanism to be simulated along a time axis on the basis of description data using a hybrid model, comprising:

a. parsing the description data to extract a description of continuous system equations **(section 2.2 " 'open' continuous subsystem with the form of a set of ordinary differential equations")**, a description of switching of the continuous system equations upon state transition **(section 4)**, and a description of an additional process other than any process relating to the continuous system equations **(figure 6 results of simulation displayed to user)**;

b. generating a first, second, and third program on the basis of the extracted description of the continuous system equations, switching, and additional process, respectively **(section 2 first paragraph: the system model is a collection of "executable entities", i.e. programs.)**

c. converting, by executing the first program, data structures of all the continuous system equations into tree structures as internal data expressions that allow execution of a simulation **(section 2: "hierarchical automata modeling" the system is expressed as a hierarchical (i.e. tree) organization of executable entities that are simulated)**;

d. starting a simulation of the mechanism after a completion of converting the continuous system equations **(section 5: step 1)**

e. switching, by executing the second program, the converted continuous system equations to activate appropriate one of the converted continuous system equations and deactivate

another instead, in response to occurrence of a first event that is detected by the second program **(section 5: steps 2 and 3 – if a transition is enabled, a new discrete state is simulated and the simulation resets to step 1; "Introduction" 6th paragraph: after a transition, a new continuous dynamics is run)**

f. executing the simulation to output data that expresses the behavior of the mechanism **(section 5 steps 1-4)**, wherein the activated one of the continuous system equations is solved by numerical integration along the time axis according to the converted data structure **(sections 3 and 3.1)**, wherein the data is supplied to the mechanism control software as a response to a control signal provided from the mechanism control software **("Introduction": 4th paragraph; section 6.3)**

g. executing the third program to execute the additional process in response to occurrence of a second event that is detected by a second program **(figure 6 output displayed at end of simulation)**

Regarding claim 5, the simulation of the prior art is run through the Ptolemy II software **(abstract)**.

Regarding claims 3 and 7:

Liu discloses the method according to claim 1, further comprising: exchanging a control signal with an external system through an input/output port in accordance with the third program, the external system including a mechanism control software system that control the mechanism **("Introduction": 4th paragraph; section 6.3)**

Regarding claims 4 and 8:

Liu discloses the method according to claim 1, wherein the first event contains an evaluation result of internal variables of the mechanism **(section 5 steps 1-4)**.

Conclusion

7. **Examiner's Remarks:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shambhavi Patel whose telephone number is (571) 272-5877. The examiner can normally be reached on Monday-Friday, 8:00 am – 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

KAMINI SHAH
SUPERVISORY PATENT EXAMINER